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BOX AF

AF/6AN-2814\$

PTO/SB/17 (09-00)  
Approved for use through 10/31/2002. OMB 0651-0032  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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# FEE TRANSMITTAL for FY 2001

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT

(\$) 310.00

## Complete if Known

Application Number	08/915,658
Filing Date	August 21, 1997
First Named Inventor	Jigish D. Trivedi
Examiner Name	G. Peralta
Group Art Unit	2814
Attorney Docket No.	MIO 0024 PA

## METHOD OF PAYMENT

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number   
Deposit Account Name

- ☐ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17  
☐ Applicant claims small entity status. See 37 CFR 1.27

2. ☒ Payment Enclosed:

☒ Check ☐ Credit card ☐ Money Order ☐ Other

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
101 710	201 355	Utility filing fee	<input type="text"/>
106 320	206 160	Design filing fee	<input type="text"/>
107 490	207 245	Plant filing fee	<input type="text"/>
108 710	208 355	Reissue filing fee	<input type="text"/>
114 150	214 75	Provisional filing fee	<input type="text"/>

SUBTOTAL (1) (\$) -0-

### 2. EXTRA CLAIM FEES

Total Claims  -20\*\* =  X  =   
Independent Claims  -3\*\* =  X  =   
Multiple Dependent  =

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
103 18	203 9	Claims in excess of 20
102 80	202 40	Independent claims in excess of 3
104 270	204 135	Multiple dependent claim, if not paid
109 80	209 40	** Reissue independent claims over original patent
110 18	210 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) -0-

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
105 130	205 65	Surcharge - late filing fee or oath	<input type="text"/>
127 50	227 25	Surcharge - late provisional filing fee or cover sheet	<input type="text"/>
139 130	139 130	Non-English specification	<input type="text"/>
147 2,520	147 2,520	For filing a request for ex parte reexamination	<input type="text"/>
112 920*	112 920*	Requesting publication of SIR prior to Examiner action	<input type="text"/>
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action	<input type="text"/>
115 110	215 55	Extension for reply within first month	<input type="text"/>
116 390	216 195	Extension for reply within second month	<input type="text"/>
117 890	217 445	Extension for reply within third month	<input type="text"/>
118 1,390	218 695	Extension for reply within fourth month	<input type="text"/>
128 1,890	228 945	Extension for reply within fifth month	<input type="text"/>
119 310	219 155	Notice of Appeal	<input type="text"/>
120 310	220 155	Filing a brief in support of an appeal	<input type="text"/>
121 270	221 135	Request for oral hearing	<input type="text"/>
138 1,510	138 1,510	Petition to institute a public use proceeding	<input type="text"/>
140 110	240 55	Petition to revive - unavoidable	<input type="text"/>
141 1,240	241 620	Petition to revive - unintentional	<input type="text"/>
142 1,240	242 620	Utility issue fee (or reissue)	<input type="text"/>
143 440	243 220	Design issue fee	<input type="text"/>
144 600	244 300	Plant issue fee	<input type="text"/>
122 130	122 130	Petitions to the Commissioner	<input type="text"/>
123 50	123 50	Petitions related to provisional applications	<input type="text"/>
126 240	126 240	Submission of Information Disclosure Stmt	<input type="text"/>
581 40	581 40	Recording each patent assignment per property (times number of properties)	<input type="text"/>
146 710	246 355	Filing a submission after final rejection (37 CFR § 1.129(a))	<input type="text"/>
149 710	249 355	For each additional invention to be examined (37 CFR § 1.129(b))	<input type="text"/>
179 710	279 355	Request for Continued Examination (RCE)	<input type="text"/>
169 900	169 900	Request for expedited examination of a design application	<input type="text"/>

Other fee (specify) \_\_\_\_\_

\* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 310.00

## SUBMITTED BY

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## Complete (if applicable)

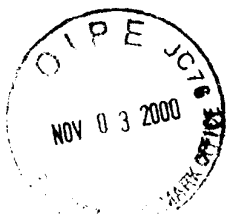
Telephone (937)223-2050

Signature

Date October 31, 2000

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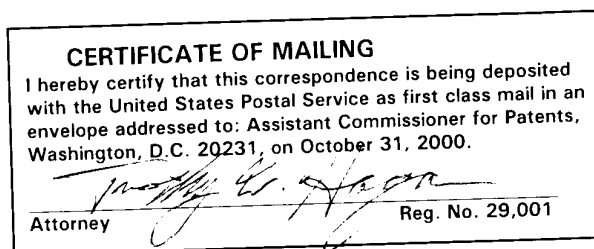
BOX AF  
Response Under 37 CFR §1.116  
Expedited Procedure - Examining Group 2814

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of

Applicant : Jigish D. Trivedi  
Serial No. : 08/915,658  
Filed : August 21, 1997  
Title : LOW RESISTANCE METAL SILICIDE LOCAL INTERCONNECTS AND  
METHOD OF MAKING  
Docket : MIO 0024 PA  
Examiner : G. Peralta  
Art Unit : 2814

Assistant Commissioner for Patents  
Washington, D.C. 20231  
**BOX AF**



Sir:

REQUEST FOR RECONSIDERATION AFTER FINAL REJECTION

This paper is being filed in response to the Office Action mailed August 1, 2000.  
Reconsideration and reexamination are respectfully requested in light of the remarks below.

REMARKS

Applicant's invention is directed to a local interconnect structure for use in a semiconductor device. The local interconnect is designed to electrically connect at least one of a source, drain, or gate in a field effect transistor. The local interconnect includes a composite structure (see, for example, composite 37 in Figs. 6 and 7) comprising a first refractory metal silicide, a second refractory metal silicide, and an intermetallic compound of the two refractory metals from the refractory metal silicides. In a preferred embodiment of the invention, the refractory metals are titanium and tungsten.

In the most recent Office Action, the Examiner rejected claims 31-34 under 35 USC §102 as anticipated by Okamoto. Okamoto was said to teach, in Fig. 4D, an interconnect structure comprising a composite of a first metal silicide 4 (disclosed as titanium silicide,  $\text{TiSi}_2$ ; col. 5, line

58), a second metal silicide 8 (disclosed as molybdenum silicide,  $\text{MoSi}_2$ ; col. 5, line 59), and "an intermetallic compound 30 comprising metal from said first silicide and metal from said second metal silicide."

Applicant believes that the Examiner has misinterpreted the term "intermetallic compound" as recited in claim 31, and such misinterpretation has led to an incorrect claim construction. Terms in claims must be construed as one skilled in the art would understand them. *Karlin Technology Inc. v. Surgical Dynamics Inc.*, 50 USPQ2d 1465 (Fed. Cir. 1999); *Loctite Corp. v. Ultraseal Ltd.*, 228 USPQ 90 (Fed. Cir. 1985) (Claims should be construed as they would be by those skilled in the art.). In the absence of an indication in the specification that a claim term is used in a unique or special way, it will be given its ordinarily understood meaning. *Hazani v. International Trade Commission*, 44 USPQ2d 1359 (Fed. Cir. 1997); *Wright Medical Technology Inc. v. Osteonics Corp.*, 43 USPQ2d 1837 (Fed. Cir. 1997). It is clear from the specification and claims that applicant is using the term "intermetallic compound" in its ordinarily understood sense. See, e.g., specification at page 2, lines 28-29 and page 4, lines 19-20.

By definition, an intermetallic compound is one in which the components are metallic. The Academic Press Dictionary of Science and Technology defines "intermetallic compound" as:

*Metallurgy*. An intermediate phase in which the components are metallic; for instance nickel aluminide.

The Encyclopedia Britannica defines "intermetallic compound" as:

any of a class of substances composed of definite proportions of two or more elemental metals, rather than continuously variable proportions (as in solid solutions). The crystal structures and the properties of intermetallic compounds often differ markedly from those of their constituents. In addition to the normal valences of their components, the relative sizes of the atoms and the ration of the total number of valence electrons to the total number of atoms have important effects on the composition of intermetallic compounds.

Okamoto, contrary to the Examiner's assertion, does not teach the formation of an "intermetallic compound" in film 30. Rather, as explicitly taught by Okamoto, film 30 comprises a titanium molybdenum silicide compound,  $\text{Ti}_x\text{Mo}_y\text{Si}_z$ . See, col. 5, lines 35-41 and 60. Thus, Okamoto

teaches a ternary silicide film 30, **not** an intermetallic compound as claimed. A ternary silicide does not meet the definition of an intermetallic compound. Accordingly, Okamoto cannot anticipate claims 31-34.

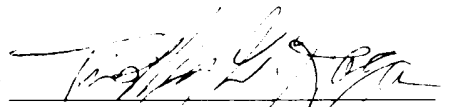
Nor would the teachings of Okamoto render the subject matter of such claims obvious, as Okamoto explicitly teaches the formation of a ternary silicide, not an intermetallic compound. There is nothing in Okamoto which teaches or suggests the formation of an intermetallic compound. Nor, with respect to claim 34, is there any teaching in Okamoto of the use of a tungsten silicide as the second metal silicide in the interconnect.

Also in the most recent Office Action, the Examiner rejected claims 35-40 under 35 USC §103 as unpatentable over Okamoto in view of Shepard. The Examiner relied upon Okamoto as above with respect to claims 31-34. Shepard was cited for its teaching of a field effect transistor structure having a local interconnect. Even if one were to concede that the teachings of Okamoto and Shepard were properly combinable, the claimed invention still would not result because, as discussed in detail above, Okamoto does not teach or suggest the formation of an intermetallic compound as that term is understood by those skilled in this art. Accordingly, claims 35-40 are patentable for the same reasons that claims 31-34 are patentable.

For all of the above reasons, applicant submits that claims 31-40 are patentable over the cited and applied art. Early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,  
KILLWORTH, GOTTMAN, HAGAN  
& SCHAEFF, LLP

By



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